## **CLAIMS**



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- 1. A display, comprising: (a) an electrophoretic display element capable of changing its appearance in response to an electric field; and
  - (b) a first electrode adjacent said display element, said first electrode comprising a protective yer adapted to prevent mechanical or electrochemical damage to said display element.
- The display of claim 1 wherein said electrophoretic display element comprises:
- a capsule; (i)
- a dispersing fluid having a first optical property disposed within said 2 (ii) 3 capsule; and 4
  - at least one electrophoretically-mobile particle disposed within said (iii) capsule, said at least one electrophoretically-mobile particle having a second optical property different from said first optical property, said at least one electrophoretically-mobile particle adapted to change position within said capsule under the influence of an applied electric field, thereby changing the optical properties of said display element.
  - The display of claim 2 wherein said protective layer is flexible. 1
  - The display of claim 2 wherein said protective layer is adapted to prevent mechanical 1 removal of said electrophoretic element from said display. 2
  - The display of claim 2 wherein said protective layer comprises a plurality of 1 conductors extending therethrough. 2

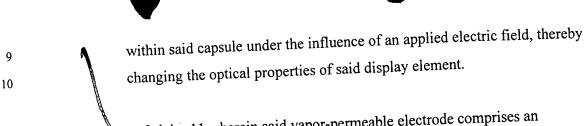


- 6. The display of claim 1 wherein said first electrode is transparent and the protective 1
- layer is disposed upon said transparent electrode, said protective layer being capable 2
- of protecting said transparent electrode from degradation under the application of an 3 electrical potential. 4

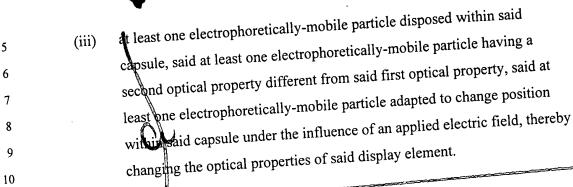


7. The display of claim 6 wherein said first electrode is transparent and comprises one or more oxides selected from the group consisting of indium oxide, tin oxide and indium n oxide.

- 8. The display of claim 6 wherein said protective layer comprises at least one chemical 1 composition selected from the group consisting of the metals nickel, palladium, platinum, ruthenium, rhodium, silver, aluminum, gold, titanium, chromium and zinc, 2 and the oxides silver oxide (AgO), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), gold (III) oxide (Au<sub>2</sub>O<sub>3</sub>), 3 titanium (II) oxide (TiO), titanium (IV) oxide (TiO2), chromium (III) oxide (Cr2O3), 4 chromium (VI) oxide (CrO<sub>3</sub>), zinc oxide (ZnO), nickel (II) oxide (NiO), palladium 5 6 (II) oxide (PdO), platinum (IV) oxide (PtO2), ruthenium (IV) oxide (RuO2), and 7 rhodium (III) oxide (Rh<sub>2</sub>O<sub>3</sub>). 8
  - 9. The display of claim 8 wherein said protective layer comprises palladium. 1
  - 10. The display of claim 8 wherein said protective layer has a thickness not greater than 1 approximately 10 nm. 2
    - 11. A display, comprising:
      - (a) an electrophoretic display element; and
  - 2 (b) a vapor-permeable electrode adjacent said display element. 3
  - 12. The display of claim 11 wherein said electrophoretic display element comprises: 1
  - a capsule; (i) 2
  - a dispersing fluid having a first optical property disposed within said (ii) 3 capsule; and 4
  - at least one electrophoretically-mobile particle disposed within said (iii) 5 capsure, said at least one electrophoretically-mobile particle having a 6 second optical property different from said first optical property, said at 7 least one electrophoretically-mobile particle adapted to change position 8



- 13. The display of claim 11 wherein said vapor-permeable electrode comprises an 1 electrode permeable to water vapor. 2
- 14. The display of claim 11 wherein said vapor-permeable electrode comprises a 1 reticulated electrically conductive structure. 2
- 15. The display of claim 14 wherein said vapor-permeable electrode comprises a wire 1 mesh. 2
- 16. The display of claim 14 wherein said vapor-permeable electrode comprises a 1 reticulated layer at least partially coated with an electrically conductive material. 2
- 17. The display of claim 14 wherein said vapor-permeable electrode comprises a 1 reticulated layer at least partially impregnated with an electrically conductive 2 material. 3
- 18. An electrostatically addressable display, comprising: 1
  - (a) an electrophoretic display element having a first surface and a second surface;
- 2 (b) a protective layer disposed adjacent said first surface of said display element, said 3 protective layer capable of transmitting charge; and
- 4 (c) an electrode disposed adjacent said second surface of said display element. 5
- 19. The display of claim 18 wherein said protective layer is flexible. 1
- 20. The display of claim-18 wherein said electrophoretic display element comprises: 1
- a capsule; (i) 2
- a dispersing fluid having a first optical property disposed within said (ii) 3
- capsule; and 4



- 21. The display of claim 20 wherein application of an electrostatic voltage of less than 1000 volts across the display creates an electrostatic voltage of at least 5 volts across the electrophoretic element.
- 22. The display of claim 20 wherein said protective layer disposed adjacent said first surface of said capsule comprises a layer having a resistivity less than 1012 ohmcentimeters and said electrophoretic element comprises a material having a resistivity 2 3 greater than 10<sup>12</sup> ohm-centimeters. 4
- 23. The display of claim 20 wherein said protective layer comprises a material having a resistivity greater than a resistivity of said electrophoretic element and a thickness 1 that is not more than 20% of the thickness of a layer of said electrophoretic elements, 2 whereby a resistance of said protective layer is approximately 20% of a resistance of 3 4 said electrophoretic element. 5
- 24. The display of claim 19 wherein said protective layer disposed adjacent said first surface of said display element comprises a layer of polymeric material. 1 2
- 25. The display of claim 19 wherein said protective layer disposed adjacent said first surface of said display element comprises a layer that conducts charge in a direction 1 2 substantially perpendicular to the layer. 3



- 26. The display of claim 19 wherein said protective layer disposed adjacent said first surface of said display element comprises a layer of an insulating material having a plurality of conductive structures extending therethrough.
- 27. The display of claim 19 wherein said protective layer disposed adjacent said first surface of said display element comprises a first region having a first resistivity and a second region having a second resistivity.
- 28. The display of claim 27 wherein said first region having a first resistivity and said
   second region having a second resistivity comprise a material which is doped
   differently within said first region and said second region.
- 29. The display of claim 27 wherein the less conductive of said first and said second
   regions is continuous and surrounds an array of isolated segments of the more
   conductive of said first and said second regions.
- 30. The display of claim 29 wherein said less conductive of said first and said second
   regions comprises vias providing access to said array of isolated segments.
  - 31. The display of claim 29 wherein said less conductive of said first and said second materials comprises a region that is continuous and that surrounds an array of islands of the more conductive of said first and said second materials, and said less conductive of said first and said second materials comprises pinholes providing access to said array of islands.

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- 32. The display of claim 19 wherein said protective layer disposed adjacent said first surface of said display element comprises a first region having a first resistivity and a plurality of regions having a second resistivity.
- 33. The display of claim 32 wherein said plurality of regions having a second resistivity
   comprises arrays of three islands.

1	34.	A method of addressing an electrostatically addressable display element, comprising
2		the steps of
3		(a) providing an electrophoretic element comprising:
4		1
5		(i) a capsule; (ii) a dispersing fluid having a first optical property disposed within said
6		1and
7		(iii) at least one electrophoretically-mobile particle disposed within said
8		at least one electrophoretically-mobile particle having a
9		1 antical property different from said first optical property, said at
		alectrophoretically-mobile particle adapted to change position
10		within said cansule under the influence of an applied electric field, thereby
11		moneyties of said display element,
12		(b) providing a protective layer disposed adjacent said capsule, said protective layer
13		adapted to transmit charge;
14		first electrode disposed adjacent said capsule,
15		notective layer an addressing electrode, data
16		leading electrode in confunction with said instance
17		1 and a selected one of said market
18		annied electric field produced between said in the
19		and said addressing electrode so as to address said electrophoretic element.
2	0	and said dad on the said said said said said said said said
		35. The method of claim 34 wherein:
	1	35. The method of claim 34 wherein.  step (b) comprises providing a layer of an insulating material having a plurality of
	2	thorathrough: and
	3	and addressing electrode in conjunction
	4	1: Langt one of said conductive structures so us to apply
	5	and independent of the state of
	6 7	one of said first appreciate from the between said first electrode and said conductive structure so as to address said
	8	electrophoretic element.
	ō	0100mol
	1	36. The method of claim 35 wherein:



2	sten (b) co	omprises providing a layer of a material having a more resistive region and a
3	less resistive	region, said less resistive region comprising at least one island adjacent said
	electrophoret	ic element, said more resistive region having at least one pinhole
4	electrophorot.	said at least one pinhole providing access to the at least one island of more
5	1	
6	conductive m	aterial; and addressing electrode in conjunction with said first
7	step (e) c	imprises activating said addressing electrode in conjunt to a sto apply a
8	electrode by	emitting charge that passes through said at least one pinhole so as to apply a
9	selected one	of said first applied electric field and said second applied electric field
10	produced bet	reen said first electrode and said at least one island so as to address said
11	electrophore	tid element.

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- 37. The method of claim 34 wherein said addressing electrode comprises part of a printer apparat hrough which said display element is passed to effect said addressing.
- 38. The method of claim 34 wherein said display element comprises two protective layers 1 on opposed sides of said capsules, both said protective layers being adapted to 2 transmit charge. 3
- 39. A display comprising: 1
- (a) an electrophoretic display element capable of changing its appearance in response 2 to an electric field; 3
- (b) a protective layer secured to said display element, adapted to prevent mechanical 4 damage there to and capable of transmitting charge to said display element. 5
- 40. A display according to claim 39 wherein said display element is essentially laminar 1 having opposed first and second surfaces and protective layers are secured to both 2 said first and second surfaces. 3